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**Journal of the Society of Arts.****FRIDAY, OCTOBER 18, 1867.****Proceedings of the Society.****MEMORIAL TABLETS OF GREAT MEN AND EVENTS.**

In order to show how rich the metropolis is in the memory of important personages and events, which it would be desirable to mark by means of tablets on houses, the Council have caused an alphabetical list to be prepared, the third part of which is now inserted. Other parts will follow. The Council request the assistance of members of the Society in completing and correcting this list, especially with reference to dates and the insertion of other names.

Whilst the Council intend proceeding with this work, they desire also to see it carried on by others—either by corporate bodies or individuals—and the Council will be happy to be instrumental in procuring suitable tablets from the manufacturers.

Eldon, John, Earl of, Lord Chancellor (b. 1751—d. 1838); a templar. Cursitor-street (No. 9 ?), Chancery-lane, was what he called his first lodge, and from here, in early life, he told his secretary he had often ran down to Fleet-market with 6d. to buy sprats for supper. He lived in No. 6, Bedford-square from 1804 to 1815, and here occurred the memorable interview between him and the Prince Regent, afterwards George IV. The latter was determined to have his friend Jekyll, the great wit, appointed to the vacant office of Master-in-Chancery; this Lord Eldon rejected. To accomplish his purpose, the Prince walked straight into the Lord Chancellor's bed-room, when ill in bed, and requested him to do as he wished; on being at once refused, he stated his intention of staying where he was till the appointment was made, the prince pitying the chancellor because he would never see his wife again. He built the house at the corner of Hamilton-place, Piccadilly, which was his last London residence. A portrait of him hangs at Merchant Taylors' Hall, and another in the gallery at the Privy-garden, Whitehall.

Elizabeth, Queen (b. 1533—d. 1603); dined at the "King's Head," No. 53, Fenchurch-street, off pork and peas, after attending service at All-Hallows-Staining, Fenchurch-street, on her release from the Tower. The metal dish and cover she is said to have used are still preserved; lived, when a girl of 13, in the same house, in Chelsea, with Queen Katharine Parr and her second husband, Thomas Seymour, the Lord Admiral, afterwards beheaded; also lived in Durham-house, Strand, which was granted to her by Edward VI.; opened the Royal Exchange in person, January 23rd, 1570, and on that occasion dined at Sir Thomas Gresham's house in Bishopsgate-street; was present at the house-warming in Sir Robert Cecil's house (Salisbury-house), on December 6th, 1602; she died at Richmond, and her body was brought with great pomp, by water, to Whitehall; was buried, and there is a monument to her memory in Westminster Abbey. The statue of her over the Fleet-street doorway of St. Dunstan's-in-the-East is the only known relic of any of the old

City gates, and stood in the west front of Ludgate, Temple-bar not being a City gate, but only a bar to mark the liberties of the City.

Ellesmere, Thomas Egerton, Lord, Lord Chancellor (b. 1616—d. 1700); lived in York-house, Strand; was a student at Lincoln's-inn.

Ellis, George Agar, Lord Dover; lived at Melbourne-house, Whitehall, now known as Dover-house.

Ely, Bishops of, Ely-house; 37, Dover-street, Piccadilly, is the London residence of the Bishops of Ely; Ely-place, Holborn, occupies the site of their "hostell," or ancient town house.

Empson, Henry VII. Emissary; lived in Walbrook, "in a fair house with doors," leading into the garden of the Prior of Tortington, now Salter's-garden.

Erskine, Thomas, Lord, Lord Chancellor (b. 1750—d. 1823); he commenced life as a sailor, then became a soldier for three years, and then studied the law; student at Lincoln's-inn; lived at No. 36, Lincoln's Inn-fields, in 1805. A statue of him stands in Lincoln's-inn Hall.

Ethelbert, King of Kent (b. 616); founded St. Paul's Cathedral.

Etty, William, R.A. (b. 1787—d. 1849); painter; lived at No. 14, Buckingham-street, Strand, from 1826 to within a few months of his death.

Eugene, Prince (b. 1663—d. 1736); stayed at Leicester-house when on a secret mission to England for the purpose of preventing peace between England and France.

Evans, John Rev., the astrologer; lived in Gunpowder-alley (No.—?), Shoe-lane; it was here that he gave William Lilly his first lesson in astrology.

Evelyn, John (b. 1620—d. 1706); was a templar; lived about nine doors up on the east side of Dover-street, Piccadilly; lodged at the "Three Feathers," in Russell-street, Covent-garden; took a house in Villiers-street (No.—?), York-buildings, Strand, in order to educate his daughters; was taken prisoner in Exeter Chapel, Strand, for attending service on Christmas day.

Fairfax, Sir Thomas, afterwards Lord (b. 1611—d. 1671); the Parliamentary general; married at the parish church, Hackney; lived in Great Queen-street (No.—?), Lincoln's Inn-fields; also in York-house, Strand, which was given to him by Cromwell.

Faithorne, William (d. 1691); engraver; lived at the sign of the "Ship" in the Strand, next to the "Drake," without Temple-bar; died in Printing House-square, Blackfriars, and was buried at St. Anne's, Blackfriars.

Falmouth, Lord; lived at No. 2, St James's-square.

Fane, Colonel (temp. George I.); one of the first inhabitants of Hanover-square.

Fanshawe, Sir Richard (b. 1608—d. 1666); lived in Boswell-court, Fleet-street; also on the north side of Lincoln's Inn-fields.

Farnaby, Thomas (d. 1647); schoolmaster; kept his school in Goldsmith's-alley, or Goldsmith's-rents, Cripplegate. He is described by Wood as the chief grammarian, rhetorician, poet, Latinist, and Grecian of his time. "His school was so much frequented, that more churchmen and statesmen issued thence than from any school taught by one man in England."

Ferguson, James (b. 1710—d. 1776); the astronomer; lived at No. 4, Bolt-court, Fleet-street, where he died. Buried at the churchyard of St. Marylebone.

Feversham, Lewis de Duras, Earl of (b. 1709). He commanded King James the Second's troops at the battle of Sedgemoor. Lived in St. James's-square (No.—?), and was buried in St. Mary-le-Savoy.

Folkes, Richard (temp. Charles II.); lived in Newport-street (No.—?), Long-acre.

Fielding, Sir John (d. 1780); one of the originators of the Magdalen Hospital, St. George's-fields, and the Marine Society; lived in Bow-street (No.—?), and was buried at St. Luke's, Chelsea.

- Fielding, Henry (b. 1707 d. 1754); dramatist and novelist; lived in Bow-street (No.—?).
- Finett, Sir John (circ. 1656); author of "Finetti Philoxenis—some Choice Observations touching the Reception, Precedence, &c., of Foreign Ambassadors in England;" lived in St. Martin's-lane (No.—?), Charing-cross.
- Fisher, Kitty; the celebrated courtesan; lived in Carrington-street, May-fair (No.—?), about 1779.
- Fitz-Alwyn, Henry, first Lord Mayor, and mayor for upwards of 24 years, and a goldsmith of the guild; lived "in a very fair house" on the north side of the church of St. Swithin, London-stone, Cannon-street; he was commonly called Henry Fitz Alwyn of London-stone.
- Fitzroy, George, Duke of Northumberland (b. 1665—d. 1716); lived in St. James's-square.
- Flatman, Thomas (b. 1633—d. 1688); poet and miniature painter; lived and died in Three Leg-alley (No.—?), (now Pemberton-row), Fetter-lane; he was buried in St. Bride's, Fleet-street.
- Flaxman, John (b. 1755—d. 1826); sculptor; lived in New-street, Covent-garden (No.—?); from 1771 to 1772; from 1781 to 1787 at No. 27, Wardour-street, Oxford-street; and also at No. 7, Buckingham-street, Fitzroy-square, from 1796 to his death; buried in the burial-ground attached to St. Giles-in-the-fields.
- Fleetwood (temp. Queen Elizabeth); Recorder of London; lived in Bacon-house, off Cheapside.
- Fleetwood, Charles (b. 1692); Lord Deputy; lived in Wallingford-house; was Oliver Cromwell's son-in-law; buried in Bunhill-fields burial-ground.
- Florio, John, author of the well-known dictionary that bears his name; lived in Shoe-lane (No.—?), Fleet-street.
- Ford, Parson (b. 1731); died at the "Hummums," in Covent-garden, formerly a bagnio, now an hotel; it was really believed, for a long time, that his ghost appeared to a waiter in the cellar of this house.
- Foster, Mrs., Milton's grand-daughter; kept a chandler's shop in Pelham-street, Spitalfields.
- Feubert, Monsieur (circ. 1683); the riding-master; lived in Brewer-street, Golden-square, in 1683; Foubert-place derives its name from him; also, Foubert's-passage; young Count Königsmarck, so deeply implicated in the murder of Mr. Thynne, was a pupil in M. Foubert's academy in London.
- Fox, Charles James (b. 1749—d. 1806); the statesman; lived in Albemarle-street, "on the left hand a little way up as you go to St. James's-street;" also for a short time in Arlington-street; Godolphin House, in the stable-yard of St. James's Palace (pulled down to erect Stafford House), was his last London residence. He is buried, and has a monument to his memory, in Westminster Abbey.
- Fox, George (b. 1624—d. 1691), the founder of the Quakers; preached in a chapel up a narrow court opposite the old-fashioned gate leading to St. Edmund-the-Martyr. Died in the house of Henry Goldney, in Gracechurch-street (No.—?). He is buried in Bunhill-fields burial-ground, but no monument has been erected to his memory.
- Fox, Stephen, 2nd Lord Holland (1774); built and lived in the mansion in the centre of the Albany, Piccadilly, and sold it to the 1st Viscount Melbourne.
- Fox, Henry Richard Vassal, Lord Holland, (b. 1773—d. 1840), the famous Whig; lived at Holland House, Kensington. "He called on Lord Lansdowne a little before his death and showed him his epitaph of his own composing: Here lies Henry Vassal Fox, Lord Holland, &c., who was drowned while sitting in his elbow chair." He died at Holland House, in his elbow chair, of water in the chest. There is a monument to him in Westminster Abbey.
- Francis, Sir Philip (b. 1740—d. 1818); one of those to whom the letters of Junius were ascribed; was educated at St. Paul's School, and lived in 14, St. James's-square. Lady Francis lent this house to Queen Caroline, who lived here during the first proceedings of her trial.
- Franklin, Benjamin (b. 1706 — d. 1790); printer, philosopher, and statesman. He worked in Palmer's printing office as a common journeyman printer, and assisted in setting the type for the second edition of "Woolaston's Religion of Nature," and "continued," he says, "at Palmer's nearly a year;" during this time he lodged in Little Britain, next to a bookseller of the name of Wilcox; he also lived at 7, Craven-street, Strand, and was employed as a journeyman printer at Watts' office, Lincoln's Inn-fields, in Duke-street, Lincoln's Inn-fields, opposite the Roman Catholic Chapel.
- Frederick, Sir John (d. 1757); his mansion was in Frederick-place (No.—?), Old Jewry, which derives its name from him. This house was used after his death, till 1768, as the London Excise Office.
- Fuller, Isaac (1672), painter, painted the sign of the Sun Tavern, behind the Royal Exchange. He was largely employed in painting the great taverns of London, particularly the "Mitre," in Fenchurch-street.
- Fuller, Thomas (b. 1608—d. 1661); author of "The Worthies," lived in chambers in Sion College, London-wall while collecting materials for his "Church History;" his book is dated from here. He was also lecturer at the Savoy.
- Fuseli, Henry, R.A. (b. 1741—d. 1825); lived at No. 13, Berners-street, Oxford-street; also at No. 100, St. Martin's-lane, from 1784 to 1785; and at 72, Queen Anne-street East, Cavendish-square (now Foley-place), between 1788 and 1792. He was buried in St. Paul's Cathedral.
- Gainsborough, Thomas (b. 1727—d. 1788), the artist; lived in the western wing of Schomberg-house from 1777 to 1783.
- Galt, John (b. 1779—d. 1839), the novelist; lived at 34, Tavistock-place, Tavistock-square.
- Gardiner, Stephen, Bishop of Winchester (1555), lived at Winchester-house, Southwark, in great style, having a number of young gentlemen of family as pages, whose education he superintended. He used the Lady Chapel, at St. Saviour's, Southwark, as a consistorial court.
- Garroway, Thomas (circ. 1650); founder of Garroway's Coffee-house in Exchange-alley, and was the first who retailed tea in leaf and in drink, and may almost be considered the founder of the present system of tea-drinking.
- Garrick, David (b. 1710—d. 1779), actor; was living in 1745 in King-street, Covent-garden, in his lodgings at Mr. West's, cabinet-maker; also in Mansfield-street, Goodman's-fields-street, during the term of his first engagement in London; also in 27, Southampton-street, Strand, before he removed to No. 5, The Terrace, Adelphi, in 1772. In this house he died. He frequented the Bedford Coffee-house, under the Piazza in Covent-garden; and also St. James's Coffee-house, St. James's-street (no longer standing). He made his first appearance on a London stage in Goodman's-fields Theatre, as Richard III. He is buried, and a monument erected to his memory, in Westminster Abbey.
- Garth, Sir Samuel (b. 1665—d. 1718), author of the "Dispensary," lived on the east side of the Haymarket, the sixth door from the top, from 1699 to 1703. He was one of the thirty-nine members of the Kit-Kat Club.
- Gascoigne, George (circ. 1537—d. 1577), poet; lived in Gray's Inn, where he was a student.
- Gay, John (b. 1688—d. 1732), poet; his "Beggar's Opera" was first produced at Lincoln's Inn-fields, and played 62 nights in one season. He was buried, and a monument erected to his memory, in Westminster Abbey.
- George, Prince of Denmark (b. 1653—d. 1708), Queen

- Anne's husband; was Lord High Admiral from 1702 to 1708, one of the exceptions to the rule that this office has been held in commission since the Revolution of 1688. He was married in St. James's Chapel, St. James's Palace, and died in Kensington Palace.
- Gerard, Charles, Lord, afterwards Earl of Macclesfield (d. 1694), lived in Gerard-street (No.—?), Soho; also in Newport-street (No.—?), Long Acre.
- Gerarde, John (b. 1545—d. 1607), the herbalist; lived in Holborn; used to collect specimens, particularly water violets, in St. George's-fields, also in Mile-end, Whitechapel. He makes the earliest mention of Piccadilly.
- Gibson, Edward (b. 1737—d. 1794), the historian. He was educated at Westminster School; was a member at Almack's Club; afterwards M.P. for Liskeard; lived in No. 7, Bentinck-street, Manchester-square, where he wrote a large portion of "The Decline and Fall of the Roman Empire," and the whole of his Defence of his noble history. He also resided at No. 76, the corner of Little St. James'-street, where he died. This spot is now part of the site of the Conservative Club.
- Gibbons, Grinling (b. 1648—d. 1721), carver in wood; was born, it is said, in Craven-street, Strand, then called Spur-alley, but this is very doubtful. He lived in Belle Sauvage-court (No.—?), Ludgate-hill, and also in a house about the middle and east side of Bow-street, Covent Garden, where he died. This house was distinguished by the sign of "The King's Arms." He lies buried in St. Paul's, Covent Garden.
- Gifford, William (b. 1755—d. 1826), editor of "Ben Johnson" and the "Quarterly Review," and author of the "Baviad and Maviad," &c.; lived and died at No. 6, James'-street, Buckingham-gate. At the shop of Wright, the bookseller, in Piccadilly, Gifford assaulted Peter Pindar, and got the better of him in the struggle. He lies buried in Westminster Abbey.
- Gilliver, Lawton, bookseller; lived at "Homer's Head," against St. Dunstan's Church, Fleet-street.
- Gloucester, H.R.H. Wm. Henry, Duke of (b. 1743—d. 1805); lived in Gloucester-house (now Grosvenor-house), Upper Grosvenor-street, Grosvenor-square; also in Leicester-house, Leicester-square, in 1766.
- Glower, Richard (b. 1712—d. 1785), author of "Leondidas," an epic poem; lived at 11, James-street, Buckingham-gate; also on Lawrence Poultney-hill, Cannon-street, City, and at Albemarle-street, Piccadilly, where he died.
- Godfrey, Colonel Charles, lived in Great Windmill-street, Piccadilly.
- Godfrey, Sir Edmundsbury (b. 1678), the famous Protestant martyr; lived in Green's-lane (No.—?), Strand. He was a wood merchant here, and had his wharf at the bottom of Hartshorne-street, Charing-cross, now called Northumberland-street. He is said to have been murdered at Somerset-house, Oct. 17th, 1778, and his body taken and thrown into a ditch near Primrose-hill. There is a monument to him in Westminster Abbey.
- Godwin, Mary Wolstonecraft (b. 1759—d. 1797), authoress of the "Vindication of the Rights of Women." She was the first wife of William Godwin, and mother of Mrs. Shelley. She lived at the "Polygon," Somer's Town, where she died, and lies buried at St. Pancras-in-the-Fields.
- Godwin, William (b. 1751—d. 1836), author of "Caleb Williams"; lived at the "Polygon," Somer's Town, which is now surrounded by Clarendon-square. He kept a bookseller's shop for several years, at 41, Skinner-street, Holborn, and lies buried with his two wives at St. Pancras-in-the-Fields.

### Proceedings of Institutions.

YORKSHIRE UNION.—*Northallerton Mechanics' Institution.*—The annual soirée of this Institution was held re-

cently in the Court House (kindly lent by the justices of the North Riding), which was crowded in every part. The chair was taken by Lord Teignmouth. From the report it appears that the Institution is in every respect flourishing.—The Chairman, after directing attention to the work carried on in the Institution, spoke in strong terms of the evil effects of combination among the working classes; but, so great was his confidence in the loyalty of Englishmen, he doubted not working men would soon emancipate themselves from the intrigues of evil disposed ring-leaders.—Mr. Henry H. Sales, while agreeing with the remarks of the chairman, pointed out the coldness and want of sympathy for workmen too often manifested by employers, who forgot that capital and labour had other duties besides the payment and receipt of the weekly wage.—Dr. Walton, jun., commended the social features of the Institution to the non-members present.—Other gentlemen having spoken, the proceedings, which had been enlivened by the excellent singing of the local choral society, were brought to a close. *Seacroft Working Men's Institute.*—A meeting of the inhabitants of Seacroft was held in the parish school-room, on Thursday, October 10th, to take into consideration the establishment of an Institute in the village. The Rev. H. J. Lorysdon, M.A., occupied the chair. After much discussion, it was unanimously resolved that the establishment of an Institute, with a reading-room, library, and lectures, was desirable, and would meet with good support. The Chairman then called upon Mr. Henry H. Sales to specify the best mode of action. A committee was afterwards appointed to canvass the village for members, and to immediately commence a Working Men's Institute, the name being chosen in preference to the usual name, Mechanics' Institute, inasmuch as but few mechanics are resident in the district. *Hebden Bridge Mechanics' Institute.*—The annual soirée and distribution of prizes and certificates took place on Saturday evening, in Messrs. Crossley's mill, kindly lent for the occasion. The chair was taken by the president, H. Horsfall, Esq. The annual report was of a satisfactory character, the number of members being 152 in 1866, against 138 in 1865. The classes were in an efficient state, due, in the opinion of the committee, in no small degree to the valuable scheme of examinations of the Society of Arts and the West Riding Educational Board. The Rev. J. B. Lockwood, the Rev. T. Wilkes, Mr. Sales, and other gentlemen, addressed the meeting, which was very numerously attended by factory operatives. Songs, glees, and recitations, together with instrumental music, made the gathering pass off most successfully.

### MUSICAL EDUCATION.

At the Church Congress lately held at Wolverhampton, the Rev. Sir F. G. Ouseley and the Rev. Thos. Helmore read papers on the subject of Church Music. A report of them was published in the *Wolverhampton Chronicle*, as follows:—

#### THE MUSICAL TRAINING OF THE CLERGY.

The Rev. Sir F. Ouseley read a paper on this subject. He began by saying that he hoped the subject on which he was going to address them would prove one of sufficient intrinsic interest in itself to secure their attention. That great improvement had been effected in Church music during the past twenty years, was now a matter of common notoriety. Many causes had contributed to this. In part it had been caused by the increased knowledge and hearty appreciation by the people generally of what was good in it, and by what had been more particularly the growth of our time, and had shown itself all over the kingdom, the formation of choral associations, the holding of large concerts, and the great increase of singers amongst all classes. In part, too, it was owing to the improved state of education generally; and, in part, too, to the system which had of late years sprung up of special choral teaching. And he would here take the opportunity of

naming Mr. John Hullah, to whom the revival of our national music was mainly due. But there was a still higher cause than any of those he had mentioned which had led to the improvement of which he spoke, for it was improvement not merely of singing only, but of a heartiness in singing. A great deal was also due to the energy and zeal with which the clergy themselves had entered into that work, and it was to the parochial clergy that they must chiefly look for the carrying out of all improvements in the choral services of their parish churches. Sir F. Ouseley then went on to show that the practice of singing in connection with religious services had been handed down to us from the earliest times; for instance, our blessed Lord joined in the singing of hymns with his Apostles, and we were exhorted so to do in the Apocrypha, where the harpers were harping with their harps. Under these circumstances he might take it for granted that it was most desirable to improve our church music, but the question arose what ought to be sung, and the way of singing it. Clergymen were the natural leaders of church psalmody, and this should go hand in hand with the professional leader which it would be necessary to engage. There was, unfortunately, a great want of musical learning in candidates for holy orders, and in some persons there was a natural incapacity and a deficient ear for music, which no amount of training would ever supply. He was the last to say that the person in which such deficiency existed should be precluded from entering holy orders, for there were many other offices which he could perform, namely, preaching and visiting the sick, but under such circumstances the leading of the choir should be left to a more competent person, who should be carefully appointed. The rev. gentleman then went on to say, upon the authority of Mr. Hullah, that there were very few who were incapable of musical training, and then came the question how could this be brought into being. To this he would reply that more attention should be given to musical training in our schools. It was true that great improvement had been made in this respect in schools, but still the musical element among the humbler and poorer classes might be developed further with considerable advantage. It fell to his lot to examine the papers of the candidates for the middle class examinations, and in musical efficiency the average was low, and he was instructed to put the most elementary questions. He then proceeded to observe that in cases of cathedral choirs the youths should be trained by some college tutor, but not brought up to spend the remainder of their hours in idleness, and allowed to run the streets, thereby growing up, perhaps, efficient musical scholars, but devoid of those Christian principles which it was so essential should go hand in hand with knowledge. He also argued that the musical training should be more general in our universities, in order that clergymen might be better able to control, and take part in the services in our country churches with musical ability. The rev. gentleman concluded by throwing out the suggestion that music should form part of the examination for deacon's orders, not as a matter of necessity, but as an alternative subject; and concluded his paper amidst expressions of applause.

#### CHURCH MUSIC.

The Rev. T. HELMORE next read an interesting paper on the subject of "Church Music," with musical illustrations by the choir of Lichfield Cathedral, with harmonium accompaniments. The reverend gentleman, after alluding to singing as a means of praise, and of following out the scriptural injunction to show our gratitude to and adoration of God, next referred to the carelessness evinced by many with regard to the proper cultivation of singing. In social life, although there was expressed liking for music, it was too often performed in an indifferent manner, to suit the carelessness of indifferent people. Music and singing had larger claims upon our attention than for the mere purpose of

contributing to our amusement; they were a means by which we could praise and glorify God. For this purpose it was essentially necessary that both the clergy and the people should learn to sing, and should properly cultivate whatever talent for singing they might possess. They could not expect to hear good congregational music whilst there was not a man amongst them who could use his voice musically as a singer. He did not speak so much of females, because, as a rule, they could always sing better than men, perhaps from having greater facilities for it, greater sympathy, and more frequent opportunities of singing. He then advocated, at some length, the formation of singing classes in all our public schools, the extension of the system of choral teaching, and also the adoption of full choral services in all our parish churches, so as to increase the devotional feeling of the people, instead of confining such services, as had been the case hitherto, to our cathedrals.

#### ON RAILWAY REFORM IN CONNECTION WITH A CHEAP TELEGRAPHIC POST AND A PARCEL POST DELIVERY.\*

BY EDWIN CHADWICK, Esq., C.B., CORRESPONDENT OF THE INSTITUT OF FRANCE.

In an address which I gave before this Association in London, when I had the honour to fill the office of president of the department of economy and trade, and also in a paper which, by request, I read before the Society of Arts,† I submitted my views on the economical principles applicable to the reform of our railway communications. I endeavoured to show that railroads, like common roads, were usually profitable, often by the increased value given by them to adjacent land, though they failed to pay good dividends—as good common roads are usually profitable, though they may fail to pay for their construction and maintenance by tolls. I contended that all taxes on the means of intercommunication—that all exactions on them beyond the payments for construction and the services of working and maintenance, are wasteful, and among the worst of taxes. I maintained that, by the substitution of public or governmental for the private trader's security—by the economies derivable from unity of management, and by the relief from local as well as from general taxation, obtainable by putting the railways in their proper position as public roads—a large saving fairly, and to provide for reduction of fares and extended accommodation to the public.

On the motion of Sir John Pakington, that address was published, and I believe it served to promote the appointment of a commission of inquiry into the facts. That commission has recently made its report. By more impartial persons than I may pretend to be, that report is pronounced to be a failure. It has failed to meet the elementary propositions to which I have referred, or to elucidate them properly. It reports as its opinion "that it is inexpedient, at present, to subvert the policy which has hitherto been adopted of leaving the construction and management of railways to the free enterprise of the people"—meaning by the people, it is fair to presume, such private enterprisers as those who, by multiplied competing capitals wastefully applied, have brought our railways into the existing ruinous condition, by whose blunderings (not to speak of any plundering) a state of complicated evil has been produced, from which it is, "at present," needful to extricate it—for the avoidance of further waste and for the sake of the free enterprise of the people—meaning the whole people—in safe, convenient, cheap, and complete intercommunication. Lord Stanley has not signed the report. Neither has Mr. Roebeck signed it. Mr. Monsell has made a distinct and very

\* Read at the meeting of the National Association for the Promotion of Social Science, at Belfast.

† *Journal*, vol. xv., p. 222. See also vol. xiv., pp. 34, 198, 276, 345, 378, 401, 462.

able report, especially on the railways of Ireland, and in opposition to the report of the majority of the commissioners. And, above all, Sir Rowland Hill has made an independent report, well sustained by evidence, on the whole question, very much in accordance with the views which I submitted to the Association.

We were led to expect a paper on the subject from Mr. Lloyd (the author of the celebrated Lloyd's bonds), who, upon Sir Rowland Hill's report, has stated that he has arrived at conclusions in the direction of those set forth therein, and was desirous to avail himself of some opportunity of expressing them publicly. I regret that he has been prevented giving us the benefit of the results of his very long and close experience for this meeting. From several persons practically engaged in large branches of railway administration I have received, privately, direct expressions of concurrence in the views I have set forth.

I now wish to direct attention to the present position of the question, and to some points specially applicable to it in Ireland, that have not, as I conceive, received the prominent position due to them. Before doing so, I must beg leave to make some observations on the Commission itself. I confess that I was somewhat surprised at its composition, in which the mistake appears to have been made, of assuming that the interests of railway directors and others, who have profited largely by the existing system, and who constitute the majority of the members of the Commission, were identical with the interests of the ordinary shareholders, who, as a class, have lost or been ruined by their management. It is a doctrine of Locke that in entering upon any question we should consider the state of our interests in respect to it. If I had made a fortune by the system in question, or belonged to a house which had received large sums on account of it, or had derived greatly augmented values of lands from it—if I owed my public position to it—if, indeed, I were a member of Parliament, responsible for the system by long acquaintance with it—I should have felt that my proper position would be that of a witness, or of an advocate, rather than of a judge upon the system. Immediately the composition of the Commission generally was seen, the directorates and private enterprisers were at their ease upon it, and their confidence was early confirmed by the course of its investigations.

So great a subject can only be dealt with satisfactorily by undivided attention, and by local investigations, and where the Commissioners are themselves unable to give it, that attention must be given for them by competent assistant Commissioners. It was due to the manufacturing interests in the great centres of industry, that complaints should be heard locally, and that the shareholders, as well as the public, should be locally informed, by proceedings on the spot, as represented by the Mayor of Dublin, and this has not been done.

These are no after-criticisms, for I remonstrated to the Commissioners themselves on the imperfection and unsatisfactory nature of their inquiries, amongst other things, in not inquiring closely into the gains derivable from unity of management;—in not examining closely, or at all, the important examples cited of cases where, under competition, extreme reductions in fares had been made good, or nearly so, by increased traffic, so as to determine what must have been the net result from the increased traffic, if it had occurred, as it might have done, under unity of management;—in not inquiring closely into the increased value of land created by the formation of railways, and justifying contributions from the land;—and in taking mere hearsay evidence, and not making direct inquiries into the governmental or public administration of railways on the Continent, which Mr. Robert Stephenson, Mr. Locke, and other witnesses, practically conversant with them, had cited as examples to be followed.

The report of the commissioners, in depreciation of those examples of the foreign railways compared with

those of England, parades the greater numbers of the English trains; omitting to notice how many of these are duplicate, and even triplicate, competing trains starting from the same points to the same points, at nearly the same times, with carriages habitually only one-half, or even one-third, full;—as on the line between Manchester and London—three capitals, for the performance of a service that might, under proper management, be better performed by one; involving, as has been shown in relation to that one line, a waste of some quarter-of-a million annually, in mileage alone. We impeached the present system for waste. The Commissioners appear to have seen no significance in such large confirmatory facts and testimony as the following of Mr. C. E. Stewart, for twenty years secretary of the London and North Western Company, who, lamenting the losses by disunion, states, by way of illustration as to one of the three companies, that "The number of passengers booked during two days from the Euston Station, on the 12th and the 13th of September, 1861—which I believe may be taken as an average—was 4,482, and for the accommodation of those passengers there were sent away trains containing seats for 13,512 passengers." Then with regard to the up traffic on those two days, "4,336 passengers arrived at the Euston, and there were seats for 13,333 passengers!" Then as to goods, he says, "The general managers will tell you that very often a waggon is sent off with a quarter of a ton, which is capable of carrying four or five tons; I believe the general average which is sent off in a waggon is not more than one and a half to one and three quarter tons." On such facts he estimates the saving derivable from unity of management if the companies "would only work harmoniously." At present, as the director of one of the largest companies declared to me, half their time is consumed by hostilities with each other.

The state of information of the commissioners on the general condition of the subject matter of their inquiry is indicated by the following questions from two of the commissioners—railway directors (put in April, 1866)—to another railway director, late a director of the Great Eastern Company.

"*Chairman* (to *Mr. Bidder*)—Are there any railway companies in England which are not able to pay their guaranteed preference stock?"

"*Mr. Bidder*—They must be very small indeed."

"*Mr. Glyn*—Are there any instances of that sort at all?"

"*Mr. Bidder*—I do not know of any. If there are, they must be very small indeed."

I might fill a volume with illustrations of their course of inquiry; especially of questions assuming as facts fallacies and interest-begotten prejudices; the answers to which would require the exposition of a system. I may, however, give one illustrative example, though that was of a commissioner who is not, that I am aware of, under any sinister interest in relation to the companies.

Mr. Galt had proposed that the reformed railways should be given over for working to the best bidders as responsible contracting companies.

7546. "*Mr. Lowe*—Do you not think that a company which had the power of sending several members to Parliament would be dealt with more leniently by the Government on whose side it returned members than a company which used its power the other way?"

"*Mr. Galt*—If you give no option, if you make it binding, that you shall let the contract to whosoever gives the most money, there is no option left in the power of Government.

"*Mr. Lowe*—When you have once got the company, supposing the company is letting the permanent way go out of repair, would it not be dealt with more leniently by the Government if it supported the Government for the time being, than if it went against it?

"*Mr. Galt*—If the Government break faith with the public, and act dishonestly, you can only go to Parlia-

ment for redress; you cannot provide against those things.

"*Mr. Lowe*—You cannot provide against the Government using its power for political purposes?

"*Mr. Galt*—If the Government chooses to act dishonestly, then all the power of the Parliament would be used to remedy that state of things.

"*Mr. Lowe*—Do you not think that a very good reason for not adopting the system you propose?

"*Mr. Galt*—I do not think so."

And so the examination goes on with a persistent assumption of an incurably rotten state of corruption on the part of the Government, and its impotency for the needed reform.

I beg to observe on the theories and facts assumed in these questions: First, that the administration of the railway directorates is generally unexceptionally pure and superior; in the next place that governmental administration under the existing constitution is generally inferior and thoroughly corrupt; that its corruption is an ultimate fact, which it passes any (his) legislative skill to remedy. That this is not an incorrect interpretation of the right hon. gentleman's meaning, may be inferred from the fact that he has said much the same before, when, as Vice-President of the Privy Council, he rejected the proposal of the Education Commissioners for giving power to the Privy Council to reform educational endowments, and rejected it on the ground that in its exercise such a power must be politically jobbed; and again recently, when he declared himself for the purchase system, on the ground that "promotion by merit" must needs be, in this country—disregarding the fact that it is not so in France or in Prussia—"promotion by job." My answer on the legislative problem, of securities against jobbing in contracts, was by referring to those taken for supplies to the French army, from it being there, as I am assured, very completely resolved, that it is resolvable here. I must, however, repeat my denial of the fact assumed of the relative inferiority and greater actual corruption of governmental administration.

Now and then, and at long intervals, there has indeed been a cloud of suspicion upon a member of Parliament, a party man who has got into a changing political office; and there have been clouds upon inferior executive officers whose duty was to pass goods, and who were seen to live beyond their salaries or ostensible means. But of the chief permanent executive officers of departments, I never knew or heard of one who lived beyond his modest salary or his ostensible private means; and I do not believe that a purer set of officers will be found in Europe. Admitting that improved securities are needed in taking contracts, I believe I shall be warranted in the allegation that there is a very large amount of public expenditure on contracts in which no reasonable suspicion attaches, to which no fair objection can be made. But only think of a privy councillor repeating such pregnant inuendoes against the executive government of the country—imputing to it inferiority and less trustworthiness than the general railway administration, in which the instances are notorious of officers leaving depressed and ruined railways with immense fortunes! I beg to recal to recollection my declaration of my belief that no government of any party in this country could have existed under such gigantic mismanagement as has been displayed in the railway administration, in the courts of law, and in public investigations. Since then I am sorry to have beheld one vast verification after another of that declaration, in immense disasters, which have disgraced the country before Europe, and have shaken commercial credit everywhere and carried ruin into the families of the poor shareholders throughout the empire, who had been led by directorates to invest their savings in shares, which they were assured were as secure as the public funds. If what the right hon. gentleman says be true—if the Government be so corrupt that it can

not be entrusted to make contracts for the public—if it be impotent to do what is requisite for the economy, freedom, and safety of the means of internal communication—to do what is done by other constitutional governments, and even by some despotic states on the Continent, it is surely a Government which, if it be not to be reformed, will not, in a social science point of view, be deemed quite deserving of his magniloquent glorification of it as an example of the perfection of legislative wisdom! Whilst progress is making in the physical sciences—under such political pessimism as the declarations cited imply, there can be no material progress in the science of legislation, or in public administration in this country.

Nevertheless, the inquiry has served to prove that the pecuniary gain to be derivable from unity of administration is very considerable. By the one practical and reliable witness, whose testimony I have cited, it is rated at twenty per cent. It is, moreover, clear that there is a large saving available on all debentures and debts, as put by Mr. Galt, of the difference in value, amounting to about one-fourth, from the substitution of private for public security. Thanks to Mr. Galt, to Mr. Monsell, and the public authorities of Ireland, the evidence has been made clear (and impartial persons would say decisive), for the resumption of the public rights and the recomposition of the governmental responsibilities in respect to the railways. Of the reductions obtainable by unity of management, as well as by the financial operations, there can be no reasonable doubt. Assuming it to be agreed that the reductions are to be made, the question is how the saving by them may be most equitably divided between the public and the railway shareholders. Here in Ireland, giving to those shareholders something who now receive nothing, and who have no reasonable prospect of receiving anything within a generation;—giving them what not directors but arbitrators in their interest would advise them to accept; giving for the railway property of Ireland, which, on a liberal estimate, is commercially valued at seventeen millions and three quarters, nineteen millions and a-half; the government or the public, borrowing money at  $3\frac{1}{4}$  per cent., would get that property for £634,560 per annum, which now yields a net annual profit of £900,592; making a gain of £266,032; added to which £120,000 is to be saved by unity of management—presenting a prospect of some total saving of £386,032 to compensate for the risks of considerable reductions of fares for passengers and rates for goods. Added to these estimated pecuniary savings, are very considerable savings in time by better fitting trains, a saving in cross districts in England estimated at one-third, without any alterations of rates of locomotive speeds. Railway shareholders in England may calculate for themselves the gains derivable from the like operation for their properties, and add to them a gain of about six and a-half per cent., by the reduction of local rates and public taxes, by placing the railways in their proper position as public highways. The government have taken the important step to ascertain, by a second commission for Ireland, what—if the first commission had been impartially and competently directed, would have been in course of being determined for Great Britain,—namely, the exact financial condition of the railways, their actual receipts and expenditure for the last three years, and the present condition of the lines and the rolling stock, with a view to ascertain their actual value for a purchase.

I now beg leave to direct attention to two additional elements of utility and value, derivable from the course I have proposed,—especially with respect to Ireland.

In relation to a country in the condition of Ireland, chiefly agricultural, I would submit, as an administrative principle, that the extension of the means of communication and the improvement of the conveniences of transit should not be delayed for demand, but should precede demand; and if the operations be conducted

judiciously and economically, they will invite and stimulate use and create demand. In parts of Scotland and in England, where railways have been constructed from one distant point to another, through thinly-populated districts, without regard to intermediate traffic, or any expectation of it from those districts,—in such conditions the projectors have been sometimes vastly surprised by an amount of traffic exceeding the traffic estimates for the formation of the lines,—that has appeared to be extraordinary and unaccountable to them. Extraordinary augmentations have also occurred, surprising to railway managers, on the occasion of the extension of conveniences by reductions of fares.

But the greatest extensions of conveniences will be in the formation of branch lines, and I should anticipate, as in the United States of America, by the construction of light and cheap horse-railways. In and about American cities the extent of horse-railway appears to be about equal to railway for locomotives. These horse-railways are made with lighter rails, and at a comparatively cheap rate. If such railways, which give to one horse the power of more than three, be an economy within advanced farms or advanced manufactures, they will be an economy to carry produce from them to stations, as well as to markets. With due extensions, besides much new traffic created, much existing agricultural and other traffic will be gathered to the railways that now goes by cart or wagon. It is probable that the full extension of these branch lines would early equal in extent the main lines now in action.

Now the present condition of the railways, in the hands of private commercial companies, operates as a barrier to these most important and economical extensions throughout the country. In the first place, the companies' habits of expense are detrimental to such cheap extensions. Their extensions are made with the like weights of rails as their main lines, and much on the same scale in other respects. The companies, as private traders for a profit, are moreover subjected to exactions for land which could not be attempted if the branch lines were put, as they ought to be, on the footing of local bye-ways, and as a service without private profit. On looking over the maps, it will be perceived that branch lines are required for much country intermediate between the existing lines, under conditions in which they will appear to be, and may be made to be, auxiliary competing lines for one main line or the other, and therefore their construction is at present subjected to every sort of expensive obstruction.

On the whole, branch extensions, under the existing conditions of the railways, have generally proved to be a system of suckers on the trunk lines; whilst, if the public rights be resumed, and proper governmental duties be restored, and if the railways be put on their correct footing, as public highways, and the branches as local bye-ways, with available economies of construction and working, the whole system of branches may be made a great system of feeders.

The resumption of the public rights, and of the governmental duties in their behalf over the means of communication, would be of great importance, especially for Ireland, by removing obstructions to the utilisation of the postal establishments, and serving for the distribution of parcels and postal messages, as in Belgium and Switzerland.

In an administrative point of view, the postal service is intimately, indeed, essentially, connected with the railway service, and, in my view, which I think is impartial, ought to be predominant in it. The union of the postal service with the railway service would be a powerful means of regulating the punctuality of the railway trains, besides furnishing the means of collecting and distributing parcels, as well as telegraphic messages. As it is, the railway companies' mail-trains are generally the most punctual, and on that account are the most resorted to by business men; and they are made punctual by the governmental service of

the post, which "fetches them up," and fines them for delay. But, as I showed in a paper read at the Society of Arts some time ago, on a parcel post system, that our pest has more than ten thousand stations, and now a force of more than twenty-five thousand persons for the performance of the public service. All the railway stations put together are, I believe, not above one-third of the number of the postal stations. The telegraph companies, as I have shown, have not more than about one telegraph station to every eight or nine of the post-office stations. The power of the distribution of small parcels and of telegraphic messages by the postal service may be said to be about eight or nine to one of the trading companies' power. If a small parcel be required to be sent a mile or two from the railway station by the railway company, usually a railway porter must be sent with it, and the time of that porter must be charged on the one small parcel, though it may be but an ounce or two in weight. But on the system of postal distribution, it would form but a small addition to the handful of letters he has to carry. If the parcels were heavy or more numerous, they would be collected or distributed by the post-cart. I had to examine the subject with reference to postal telegraphy, for a paper prepared to submit to Mr. Gladstone on the question, when it was manifest that under the existing conditions, the companies could not extend their stations, with a fair prospect of profit, beyond their existing numbers; and for this reason, that the companies must have separate office rents, coals, candles, taxes, office-keeper, and messengers, for comparatively few messages, which will not pay the extra expense. The rent, and other expenses of the stations, as well as the services of the post station masters, are already paid for, and they would be compensated for the occasional additional service by a relatively small, but acceptable addition to their existing pay.

In the case of postal telegraphic messages, in a large proportion of cases, in rural districts, the postal service would, as I must remind you, reduce the distance and the time of delivery of the message by post messenger to one eighth or ninth of the labour and expense to which the private companies are now put. Thence it follows that by the utilisation of postal stations and services on a public footing, collections and distributions may be effected at low rates, quickly, and with a profit, which private companies, with their separate establishments, cannot effect at the same rates, nor, indeed, at much higher rates except at a loss.

In London, and in most places in England, to get a letter, and a telegraphic message sent, and a small parcel forwarded, application must be made at three different and commonly distant places. In Switzerland or Belgium, and other places on the Continent, you only go to one place, the postal station, which, in itself, is a great convenience and saving of time, especially when the tariffs are all well known. In Belgium, the uniform telegraph message has been reduced to half a franc, and the revenue has been replaced by it. In both countries the charge for the transmission of small parcels is very small. In Switzerland parcels of 120 lbs. weight may be sent by post.

I may here state that the Belgian government, appreciating the importance of the cheapest and freest means of inter-communication, though their fares were of the lowest in Europe, have recently reduced them considerably lower. Their first-class trains, which were about three half-pence per mile for the express trains, they have reduced to less than three farthings, and their second-class to less than a half-penny. Thus the express fares from Brussels to Verviers, which is 86 miles, are—for the first-class 4s. 9d., for the second-class 3s. 2d.; whilst for the ordinary trains the fares are—for the first-class, 4s., the second, 3s., and the third, 2s. In England, the fares for express trains range from two pence half-penny to threepence per mile, and the second-class from three half-pence to twopence. As to the ordinary fares, take those here at Belfast. Take those

from Belfast to Carrickhugh, which is 82 miles—they are, first-class, 14s. 3d.; second-class, 10s. 4d.; third-class, 6s. 6d. Take an English line, for example, that from London to Rugby, which is 82½ miles; the fares are—first class, 15s.; second, 11s.; third, 6s. 10d. On the Belgian lines they charge extra for such luggage as the passenger cannot carry and put under the seat, which occasionally may make some slight difference in favour of the English lines, and in Belgium return tickets are less frequently granted. But what will all that come to? The time has been unfortunate for the change, as Belgium has partaken of the commercial stagnation prevalent in Europe, but the net revenue is in course of replacement from the bold and highly politic reduction, which, looking at the analogies of the population of the two countries, I regard as an encouraging example for Ireland.

The result of the utilisation of the public stations and the postal service in Belgium and Switzerland has been a considerable augmentation of traffic. In a few years the transmission of small parcels by post has been nearly doubled, and I believe now they are at an increasing rate of nearly five millions annually in Switzerland. In Ireland the number should be in the same proportion more than doubled, and the branch lines made more largely feeders to the main lines.

The effect of this system on trade in Ireland would be, as it has been in Switzerland, very powerful. It would enable traders to send for goods as they want them, and to diminish the expense of stocks. In Ireland, as in Switzerland, it would enable business to be transacted often with one-third the stocks that were heretofore found necessary.

In Ireland, however, I apprehend that the stocks in the village shops and the retail shops in general are, from poverty, very low. With them the results of cheap parcel post conveyance, and of a cheap postal telegraph, would be the reverse of that in Switzerland or Belgium. It would be to give them, in effect, indefinite augmentations of stock, by enabling them to send for goods fresh, and as they wanted them. It would also tend frequently to bring the producer directly in communication with the consumer, and to save the cost of intermediate agents. In several of the continental states there are large beneficial results in progress in these directions, which here in Ireland, as well as in England, are arrested—I say, unavoidably arrested—by the condition of railway communication in the hands of disjointed and conflicting companies.

The railway commissioners could not well avoid noticing the complaints made of the uncertain and conflicting rates and the imperfect delivery of parcels, and they say:—"Looking at the extent to which the railway system has now reached, the time has arrived when railway companies should combine to devise some rapid and efficient system for the delivery of parcels." They might have added the word "economical" delivery, and also some rapid and efficient system for the collection of parcels.

When I represented the great extent of the ground for which new branch railways were needed, and of the capillaries of the system of internal communication which required to be improved, speeded, and utilised, I did so from impressions derived from passing observation. But the distinct statistical evidence of the extent of the postal system of deliveries, or of those capillaries which they advise the railway companies to rival, was put before the commissioners, by the evidence of Mr. Page, from the post-office, and it is this: The number of miles which mails are conveyed daily by railway in the United Kingdom is 49,700, and, beyond these, the number of miles which mails are conveyed daily, by coaches, mail-carts, and omnibuses, is yet 33,000, whilst the number of miles travelled by the rural post messengers is 72,000 miles daily, or nearly as much as all the mileage of railways and mail coaches put together. Could the commissioners have minded these facts, or have heeded what they were proposing, when they proposed that the

railway companies should undertake the delivery of parcels—impliedly as equivalent to the plan proposed of a postal delivery—*i.e.*, that the railway companies should undertake the separate service of parcel delivery by separate means, equivalent to this thirty-three thousand miles of postal delivery, by coach or mail carts daily, or the daily postal delivery of seventy-two thousand miles by foot, to be provided and paid for separately? In Ireland, however, it stands thus, and I adduce the fact for particular attention; whilst the daily conveyance, by mail coaches, carts, &c., is 8,277 miles, and by foot messengers 8,680 miles daily, by railway, according to the last returns, it was only 4,645 miles daily. That is to say, they were recommending to the existing companies the formation of a triple number of stations for collecting and delivering parcels, multiplied offices and services, clerks, &c., as well as carts—an extra expense for them which must, if charged on the parcels, to a great extent be prohibitory.

In Ireland there are sixteen hundred and more postal stations. I have not at hand the number of railway stations. But, as some electric telegraph company directors maintain the same doctrines against the utilisation of public establishments for the public service, in exemplification of its fallacy, I may mention that, while there are 1,625 postal stations, there are only 92 telegraphic stations in Ireland. In other words, the telegraph stations are to the postal stations in Ireland as one to seventeen. If the public are determined to utilise their postal establishments, as I trust they will be, the trading companies must, in Ireland, have sixteen more separate establishments to compete with them—a supposition that is absurd. Are, then, the sixteen places, sixteen towns or villages out of seventeen to be deprived of the benefit of quick and cheap intercommunication by message, that the monopoly of a trading company, and its power of making exactions on their necessities, may be maintained?—a supposition that, as a question of legislation and administration, is also absurd.

In Ireland, where, on the principle I have stated, conveniences ought to be in advance of demand, the proportion of post-offices to the population, which ought to be the same, is less than in England. The combination of the postal with the railway and the telegraphic services may serve to make them equal at reduced cost. In Ireland there is only one postal station to some 3,700 of the population. It is stated to be part of the post-office plan to extend postal telegraphy only to places having a population of 5,000 persons. This can only be accepted as, in the first instance, a tentative extension. In Prussia, which is in many respects the best administered country in Europe, in which the government well knows what it is about, it has been officially announced that the government intends to extend the telegraphic system to every place with a population of 1,500 persons, or nearly double the extent of our postal stations.

On the public footing there are other large branches of service for which the telegraph is needed, and which should contribute to the establishment charges, in reduction of those for the telegraphic post.

As a commissioner of inquiry into the organisation of a police force, I can state that by a complete system of telegraphic communication from station to station, and in combination with a general postal system, the efficiency of the police force may be nearly doubled. If I recollect rightly there are upwards of 1,300 police stations in Ireland. Then there are the coast-guard stations, and the Royal and mercantile marine stations, and all the military stations, which need connection; and all these will bring telegraphic communication closer than the existing telegraphic stations. The statement made by the Minister of War for Belgium declared that placing the railway under public control had doubled the efficiency of the army, and that the electric telegraph would double it again, and this is, I submit, especially applicable to Ireland. I am assured, upon good authority, that by a recent invention by Mr. Donald Nicoll, underground

telegraphs may be laid down and maintained as cheaply as the present system of overground telegraphs.

The opposition to the utilisation of the public establishments for the public service by postal telegraphy, is similar to the opposition to the utilisation of the establishments for the distribution of parcels, and to the utilisation of the public highways for railway communication under unity of public management as a service. I beg to notice some of the grounds put forward in opposition to postal telegraphy.

In the paper which I read at the Society of Arts, I stated that "Under the existing conditions of dearness and great incompleteness in England, the telegraph may be said to be a mere class telegraph, in regular use only for stock brokers, produce brokers, and the higher classes of professional men. It cannot be called a domestic or a general public telegraph. For domestic use it is generally only available to the very-well-to-do classes—the few. For the higher middle classes its use is confined chiefly to extraordinary occasions, to death, to mortal sickness, or to impending calamities. So much is this so even amongst wealthy families, that at first a telegraphic message often gives, before the message is read, a shock of alarm, that something sad has happened, and is to be communicated. To the many, to the lower middle classes in towns, to the wage classes in towns, as also to the agricultural classes, the present charges may be said to be entirely prohibitory."

In the course of an answer to my paper made by Mr. Grimston, the chairman of the International Telegraph Company, he thus states the limits of the present use of the telegraph, as a ground for doubting the amount of the returns obtainable from its extended use as part of a public postal system, and he states, as a proof of his assertion, "that the gross receipts of the Electric Telegraph Company, in the year 1866, amounted to £324,537 17s. 9d., of which 75 per cent. was taken at 15 stations, 22 per cent. at 77 stations, and 3 per cent. at the remaining 1,157 stations." As a further proof he says:—"I may add that half the money taken at the 15 large towns was received in London, a quarter in Liverpool and Manchester, and the remainder at 12 other large towns." And hence he assumes that telegraph stations in minor or rural districts will not pay.

This, I submit, is entirely in accordance with my preceding statement as to the limited use of the private commercial telegraph, the charges for which are increased, by extended post messengers in the rural districts, just at the point where they ought to be diminished. If the commercial telegraphs were so extended to equal the seventy-two thousand miles of the postal daily foot deliveries, by separate commercial establishments, and at the tariffs requisite to pay for them, it would be, as in the case of the railways, an extension of system of powerful and exhaustive suckers; whilst by the cheap utilisation of the public establishment, and appropriate low charges and extended conveniences, the postal telegraph stations properly administered will become part of a system of feeders.

Mr. Grimston takes upon himself to say that the post-office clerks "have duties quite sufficient to occupy their time without undertaking the work of telegraph clerks, for which they are utterly unfit." He says that, "the persons employed at post-offices in small country towns and villages are quite unfit to be telegraph clerks. Telegraph clerks must commence young, and receive a regular training before they become efficient manipulators, and in practice it has been found that persons over 25 years of age learn the telegraph very slowly, and scarcely ever attain to thorough efficiency." Can this chairman of a large telegraph company be really unaware of the fact, that there are a number of village postmasters who do now act as telegraph clerks for companies, and that they are among the most intelligent and successful—more successful than the common railway porters, by whom a large proportion of the telegraphs

throughout the country are worked; — that whilst some instruments are difficult to use, there are other instruments so simple and easy to be learned, that their use is acquired in a week or a fortnight by old people, as well as by young; and that they are readily worked by common shop lads in private commercial establishments? The knowledge of Mr. Scudamore of the telegraph service, and the means of applying it, is, it would seem, better than that of Mr. Grimston, as to the postal service and its capabilities.

The Chairman of the International Telegraph Company sums up the grounds of his opposition to our measure in the following propositions:—1st. "That the extension to any considerable number of small towns and villages would cause an annual loss to the State instead of a profit." That is to say, I presume, that it would cause a loss, by dispensing with separate establishment charges, of office rents and services, and by reducing the length and expense of post messages in England from some eight to one, and in Ireland from seventeen to one, and by using, occasionally, the postal foot messengers for deliveries to these reduced distances. 2nd. "That village postmasters and postmistresses are totally unfit to work the telegraphs." To my answer already given that they are found to be as fit or even more fit than railway porters, I will add that Captain Bolton, of the Royal Engineers, says, "I will undertake to instruct, in the brief space of half-an-hour, any postmaster or postmistress of any country station, who can read and write, to correctly send and receive a telegraphic message by my system." 3rd. Mr. Grimston says "That the delays inseparable from the system proposed for sending out messages would be very great;" *i.e.*, especially in the rural districts where the postmasters, from the comparatively small amount of their business, have the least interruption, and where, as I have stated, the distance and the time of the foot messages in England will be reduced to one-eighth and in Ireland to one-seventeenth. 4th. "That the consolidation and amalgamation of the existing telegraphic companies could, for the reasons already given, be much better effected by the companies themselves, supposing an Act of Parliament could be obtained, than by the Post-office assuming the direction and management of an undertaking about which they cannot be expected to have a practical knowledge." Amongst the reasons given there is this, "That the buildings occupied by the post-offices in London and other towns"—not very many I apprehend—"are certainly not large enough to contain the apparatus and staff of the telegraph companies without considerable expense; and as the post-office is managed in a most economical manner, it follows that the post-office clerks have sufficient to occupy their time, without undertaking the work of telegraph clerks, for which they are entirely incompetent."

Now, my plan at least assumes that to all the most able of the permanent officers of the telegraph companies who chose to stay, the measure would simply operate to a change of masters—a change from private to public service, office, and position—a change to their advantage, whatever it might be to chairmen and directors. But does his plan of amalgamation assume the utilisation of the present ten thousand postal stations and their masters, and the seventy-two thousand miles of daily foot deliveries, or does it not? To assist his conception, I may mention that the aggregate extent of the daily foot deliveries in Ireland exceeds the diameter of the globe, and in the United Kingdom they are in the aggregate of an extent of nearly three times its circumference. If it does dispense with the services of the eight or nine fold establishments, what is the comparative worth of his plan? If it does not dispense with them, is it expected that the control of public establishments and of public offices would be given to private and comparatively irresponsible trading companies? He cannot but admit that there would be a considerable gain by the unity even of the existing telegraph companies competing establishments, apart

from the gain derivable from amalgamation with the postal establishments. "The saving of establishment charges by consolidation and amalgamation," he says, "would of course amount to a considerable sum annually, and had the company dared to hope that Parliament would have granted an act for the federation of their various undertakings, involving a fair and reasonable tariff to have been fixed by Parliament, they would have submitted a bill for that purpose years ago."

Nearly the like propositions have been entertained by railway directorates, and by the directorates of water companies and of gas companies. But having obtained privileges from Parliament on the basis of free competition, the public will say, and the Parliament must say, that they, the companies, must abide by that principle, and that it will not abrogate it in their interest by the creation of any great trading monopoly, seeking profits by exactions on the public necessities, and having comparatively nominal responsibility for their acts. Such a trading monopoly would offer the most serious impediments to the progress of improvement, from having strong interests against it. It would, moreover, perpetuate a vicious principle of administration, that of men having other and more powerful interests to attend to, namely, their own peculiar professional pursuits and interests, and giving only a divided and distracted attention to great subject matters, of a nature to tax the undivided attention of the most competent officers, stimulated by exclusive personal interest in their success. The practical objection I entertain to such plans as that of Mr. Bidder—of Government borrowing money at  $3\frac{1}{2}$  per cent. and lending it at  $4\frac{1}{2}$  per cent. to the companies, on the security of their lines, to pay off their debenture and floating debts, and constituting the one per cent. beyond the borrowing price into a sinking fund to redeem the roads in time—is, that these plans dispense with the great economies and the immense conveniences of the saving of time and otherwise, derivable from unity of responsible management; they continue the vicious principle of management by the divided attention of practically irresponsible directorates. If the consideration even of a federative direction came to pass, and the continuance of the separate directorates, and the interests of individual directors were set aside, I expect that they would themselves provide for an executive direction under undivided attention and responsibility, and would leave to directorates only functions of inspection and audit, on the French principles of *conseils de surveillance*. But if the separate management by directorates be given up, and the need of public responsibility be duly considered, parties would, I apprehend, concede the need of a governmental authority being at once and directly charged with the work, subject to the control of Parliament.

To return to the assertions of the Chairman of the International Telegraph Company. The assertions of such practical authorities against the economy of telegraphic and railway reform are of the same sort as those of the old practical officers against postal reform. They declared that the penny post would be an utter ruin. In Switzerland and several parts of the Continent halfpenny posts pay. But the fact of a thing being done is, I must submit, cogent evidence of its possibility, and I beg to remind the association that it is being done widely. In Belgium telegraphy was commenced as in England, by trading companies, and they were proceeding in a poor way to themselves, and unsatisfactorily to the public (much on the miserable scale of the companies' telegraphs in Ireland), when they were bought up by the Government, and a system of postal telegraphy established on a uniform franc message principle. This, as I have stated, answered so well that a uniform half-franc message has been adopted, and in the course of a year the revenue has been replaced, and is now going on increasing. In London a small company was established on a plan of sixpenny messages, but the stations being comparatively few and many of the deliveries very slow—not quicker than many other means—it was a failure. In the dis-

trict of Paris there was a postal system of uniform franc telegraphic messages, which has lately been reduced to half-a-franc. In less than a year there has been a ten-fold augmentation, and the use of that telegraph is going on increasing.

In the United States, the recommendation of a committee of the Senate on the post-office and on post roads urging that the post-office department shall be authorised to undertake postal telegraphy as a work of necessity and public convenience, is still before the legislature. In Massachusetts I know, from my own correspondence, and I believe in others of the States, the questions we have raised here, as to the resumption of the public rights, and the reimposition of the Governmental duties in respect to railway communication, are being raised there.

The chief economical and administrative conclusions which I have now to submit, are:—That communication by railway forms part of a connected system, for the transit of persons, letters, information, and goods. That as a regulating, and predominant controlling function, constantly acting, to ensure punctuality in the departure and arrival of trains, as well as the postal deliveries connected with the trains, the postal function has properly a chief place. That the exercise of this controlling function, for ensuring punctuality in the conveyance of letters, is of importance for insuring punctuality in the conveyance of passengers, as well as of parcels conveyed by quick trains. That the postal stations and the services of the postal officers and servants should, for the public economy, be utilised for the conveyance of telegraphic messages as well as of small parcels, as in several continental states. That the police stations, and the naval and military stations, should be combined in a complete system of telegraphic communication. That, hence it follows, as a question of administrative improvement, that the exercise of the functions, for the conveyance of letters, telegraphic messages, passengers, and goods should be combined under one chief and responsible public authority.

Unity of management, under a public authority of railway communication, will be in itself an important advance in public improvement. Unity of management of telegraphic communication in connection with the post will also be in itself an important and much-needed improvement. But jarring action will be avoided—the improvement in the pecuniary and other results will be the more complete and speedy—if the requisite combination and subordination of administrative functions be considered and provided for at the outset.

Ireland has, in its general police, the elements of administrative improvement in advance of England. Ireland has, too, an administration of relief provided for the destitute in advance of that of England. I trust that, through its representatives, it will have, as it ought to have, the lead in the necessary improvement of all the means of internal communication.

If I may use a simile derived from sanitary science, I would say that, to give entire freedom to the main arteries of communication, to complete the capillaries of the system, the branch railways—to provide for it, as it were, a new set of nerves of quickened sensation and motion, by a cheap system of postal telegraphy, would, more than any other measures, put the body politic in a condition of healthy and prosperous action, such as has been imparted to Belgium by the like means. By those means unhealthy formations may be made to slough off, and morbid conditions, and febrile action, the result of deficient and interrupted circulation and stagnation, may be best dissipated.

## Manufactures.

**ALBUMINIZED PAPER.**—It appears, by the *Stationer*, that at Dresden albuminized paper is now being made in very large quantities, and is considered the best, by

reason of the excellent and regular manner in which it is produced. Although scarcely four years ago the trade was unknown here, the city is now manufacturing at the rate of upwards of 6,000 reams per annum, a quantity that would suffice to print more than 120,000,000 photographs of the size known as *carte de visite*. The albumen is extracted from the white of the new-laid eggs of fowls, and nearly 2,000,000 eggs are consumed, the yolks of which are used by tanners for preparing the finer kinds of leathers. After preparation, the paper is carefully assorted, and from ten to fifteen per cent. is thrown out, but is made available by the Dresden printers for colour-printing.

### Commerce.

**THE USE OF THE SACCHAROMETER.**—The *Produce Markets Review* speaks of the important aid this instrument is for the analysis of sugars, as shown by a striking experiment carried out by M. Dubrunfaut, and recorded by him in a recent number of the *Journal des Fabricants de Sucre*. Two samples of West Indian sugar, No. 10, of the same shade of colour, and apparently of the same commercial value, after being submitted to the saccharometer, were ascertained to contain 93·00 and 88·00 parts of saccharine matter respectively; of which only 88·63 and 78·17 represented the extractable sugar. Now the values of these two sugars, according to the usual method of judging by types, would have been the same in each case, at the rate of 54 francs 50 centimes per 100 kilogrammes, but with the aid of the molassometer, the values were ascertained to be in the one case at the rate of 54 francs 69 centimes per 100 kilos., and in the other only 47 francs 25 centimes; so that an English sugar refiner buying by colour, according to the Dutch system of types, would have paid in one case exactly 7·44 per 100 kilos. above its real value! Is not such an instance as this sufficient to convince the most sceptical how necessary it is for us to keep pace with the rapid advances made in the knowledge of this subject on the Continent? What with the disadvantages arising from the unfair operation of the Drawback Convention, and the unwillingness of the refining body to have recourse to even such resources as are in their reach, it is not to be wondered at that continental refiners undersell our countrymen in all the markets in Europe.

**TRADE AND REVENUE OF 1866.**—The Commissioners of Customs, in their report for the year 1866, say that “the statistics of trade and revenue for that year must be admitted to afford a remarkable example of the vitality and elasticity of the resources of this country.” It appears that there has been an increase of twenty-three millions, or 13 per cent., in the values of the exports of British and Irish produce for the year 1866 over those of 1865, which was a year of great national prosperity; that there has been an increase of twenty-four millions in the total imports into the country for 1866 over the year 1865, and a considerable rise in the general consumption of nearly every article subject to duty; and, notwithstanding the extensive reductions that have been made of late years in duties, there is still an increase in the gross customs receipts over those of 1865. This is the more remarkable, considering the disastrous events that occurred in that year: war on a gigantic scale on the continent of Europe, and a seditious outbreak of a very serious nature in the neighbouring country of Ireland; a deficient harvest throughout the United Kingdom, and a monetary and commercial crisis of almost unparalleled severity; besides the cattle plague and the cholera. Notwithstanding these disasters, the report declares that no year since the commencement of the publication of these reports, except 1865, can show so favourable a return.

**SWEDISH FILTERING PAPER.**—The filtering-paper made in Sweden (says the *Stationer*) is probably better than that produced by any other nation, in consequence of

its being wholly free of accidental salts, which in many papers of similar make often entirely destroy the effects of chemical analysis. The excellence is supposed to be due to its being made entirely of linen rags, more readily procured here than elsewhere, and to the purity of the water. This hint may be serviceable to foreign makers of filtering papers, by causing them to use in its manufacture only distilled water. A recent experiment proved that an equal weight of linen and Swedish filtering-paper being burned, each gave forth the same volume of cinder. At the present time large orders of common writing-papers are being executed at Rosendahl for exportation to England, though possibly it is not known that these qualities contain sixty per cent. of wood-pulp. In spite of this circumstance, however, they meet with a ready sale.

### Colonies.

**CAPE OF GOOD HOPE.**—Large prizes have been offered by the government for tobacco of certain quality fit for exportation to European markets, and this has greatly stimulated its cultivation. Silk culture has likewise been taken in hand, the legislature this season giving the executive authority to lay out mulberry plantations in different parts of the colony for the purpose of encouraging the culture of silk for exportation. The extension of chicory fields is also encouraged that the pure article may be produced, instead of having one that is adulterated imported. A good deal of attention has been directed to improvements in tanning, and experiments have been made with the many acrid barks this colony abundantly places at the tanner's disposal to ascertain the best for various purposes.

**LAND IN SOUTH AUSTRALIA.**—During the year ended 31st March, 1867, 214,431 acres of land were sold by the South Australian government, more than 100,000 acres less than the quantity sold during the same period of the preceding year. The total area of purchased land in the occupation of lease and free holders on 31st December, 1866, was 3,424,721 acres, or 20 acres per head of the estimated population. It appears that the most numerous class of farmers are those with between 100 and 200 acres. With regard to cultivation, the increase of last year was rather better than that of the year before. The total quantity of ploughed land was 739,714 acres, as compared with 660,569 acres in 1865-6.

**THE PROVINCE OF OTAGO.**—A New Zealand paper says that the abundant harvest of last year has pressed upon the attention of the inhabitants of this province the necessity for improved communication between the interior and ports of shipment. Prices of agricultural produce have ruled exceedingly low, and the heavy cost of carriage interferes to a great extent with the prospect of exporting the surplus with a profit, where the grain has to be carried any great distance. A railway would obviate this difficulty considerably, and tend to bring into cultivation a still larger area than at present, if, by cheapening cost of transit, produce could be grown and exported at a profit. It would be still better if, by a steady stream of immigration, consumers who were likewise producers could be introduced into the province.

**GOLD FROM VICTORIA.**—From the commencement of the gold diggings in Victoria, in 1851, to the end of 1865, 309,980,71 ozs. of gold have been obtained, of the value of £123,992,284. It is estimated that out of 86,831 square miles, the area of this colony, one-third is occupied by gold-bearing rocks. Out of more than 18,000,000 of acres available for research, less than half a million have been in any way explored. At the end of 1865 not more than 135,000 acres were actually occupied for mining purposes. The value of machinery on the gold-fields is estimated at nearly £2,000,000, giving an average of £23 for every man employed, and of £14 for every acre occupied. The total value of the claims is

estimated at nearly £8,000,000. To increase the yield of gold, the principal thing required is a steady supply of water. Private water-races have been constructed in some districts. In the whole colony there are now nearly 2,000 miles of water-races, the construction of which has cost more than £250,000; but great works are being carried out by Government, which will eclipse all private works. This water supply, which is expected in itself to prove a remunerative undertaking, will stimulate mining industry, and make the yield of gold more uniform all the year round.

**NEW ZEALAND COAL.**—A valuable discovery of coal has been made in Preservation Inlet, at the south-western extremity of the province of Otago. A vessel which left the latter port some time since on a prospecting expedition, has returned, bringing a quantity of coal obtained from Preservation Inlet. The samples are said to be of good quality, and the best yet produced in this province.

### Notes.

**ITALIAN WORKMEN AT THE PARIS EXHIBITION.**—A commission of artists and workmen has just been sent by the town of Trent, under the guidance of Professor Rosetti and a young architect, Signor Taminini. The twenty-one districts of Trent, situated in picturesque and fertile valleys, alone form an important agricultural and industrial country. Silk and wine form the principal elements of wealth in this district; the olive and tobacco are sufficient to supply an important trade. The forests are numerous in these valleys, and timber of every quality grows with the same rapidity as in Norway. The mineral resources are most extensive, and only require to be worked, and the provinces of Trent will become the Switzerland of Italy—the vineyard of Bavaria and the Tyrol. The Vinicultural Society of Trent, founded three years ago by the late M. Boscarelli, is most prosperous, and the wine produced by it rivals in quality those of Italy and the Rhine. Numerous silk-spinning mills, tanneries, paper-mills, manufactories of silk stuffs and velvets, iron and copper-works, of which several are honourably represented at the Paris Exhibition, are scattered about in this country, but in a small relative proportion, considering its production of combustibles, water-power, and industrious population of 400,000 inhabitants.

**FOOT-BRIDGES ACROSS THRONGED STREETS.**—The authorities of Paris have accepted a tender for the construction of an experimental iron bridge for foot passengers, for the junction of four streets. The experiment of relieving crowded streets by such means is to be tried, at first, at the spot where the Rue de Madrid and Rue Rochet cross each other.

### Patents.

*From Commissioners of Patents' Journal, October 11th.*

#### GRANTS OF PROVISIONAL PROTECTION.

Alarm apparatus—2651—E. H. Newby.  
Axles, &c., cranked—2693—R. Wilson and J. Nuttall.  
Boots and shoes—2683—A. M. Clark.  
Buildings, warming and ventilating—2701—W. Woodcock.  
Carriage steps—2671—T. Kendrick.  
Cartridges—2654—C. E. and J. Green.  
Cheques, bills of exchange, &c.—2719—J. Jameson.  
Cinder sifters—2709—J. A. Smyth.  
Cisterns—2665—A. Mackenzie and S. Robinson.  
Cores used in casting metallic pipes—2601—J. Antill, G. Grimes, and H. C. Tunks.  
Envelopes—2647—C. McDermott.  
Envelopes—2675—J. Griffin and F. Green.  
Envelopes—2681—R. Wappenstein and A. Laidlaw.  
Epsom salts—2685—A. Ziegeler.  
Fabrics, printing—2581—J. B. Meldrum.  
Fabrics, printing—2597—W. Whitehead.  
Fire-arms, breech-loading—2587—J. R. Cooper.  
Fire bars—2689—J. Lewis, W. Huntington, and W. Anyon.  
Fire guards and screens—2589—H. Symons.  
Food, combining animal with vegetable—2661—D. T. Lee.

Fuel, artificial—2577—H. R. Luckes.  
Fuel, perfect combustion in the burning of—1610—T. Petitjean.  
Furnaces—2611—C. Holste.  
Furnaces—2679—W. Beardmore, W. Brock, and A. C. Kirk.  
Furnaces, &c.—2571—W. Baker.  
Gas burners—2692—T. H. Williams.  
Gas, distributing for heating and lighting—2629—R. Watson.  
Grain, &c., crushing—2627—T. B. Wilkinson.  
Grain, &c., drying—2071—J. L. Norton.  
Hat ventilators—2655—P. Crause.  
Heavy bodies, lifting, &c.—2663—J. Meiklejohn.  
Horse rakes—2583—J. Wilderspin.  
Horse rakes, &c.—2639—J. H. Sams.  
Hydro-extractors, &c.—2569—E. K. Dutton and S. Mason.  
Iron—2637—J. G. Willans.  
Iron, glazed surface on cast—2717—E. T. and C. Horsley.  
Lace—2613—W. Bratford and J. Gadsby.  
Liquids, heating, &c.—2593—W. F. Batho.  
Locomotive wheels—2591—J. Reid.  
Maps, &c., holders for—2615—T. Turner.  
Metal bars, &c., rolling—2635—W. Molinaux.  
Mining and tunnelling apparatus—2607—J. A. McKean.  
Motive-power—2633—W. J. Murphy.  
Moulders blackening—2711—R. W. Bennie.  
Paraffin—2721—J. Fordred.  
Pens—2669—J. Rives.  
Pettycoats—2649—R. Raffault.  
Potatoes, digging—2697—W. M. Cranston.  
Printers' rollers and blankets, washing—2667—T. Muir.  
Projectiles—2695—J. C. Bayley and D. Campbell.  
Railways, communication between passengers and guards on—2617—S. C. Amesbury.  
Refrigerators—2707—J. Oxley.  
Salt—2575—J. Davies.  
Saws—2579—W. E. Newton.  
Sewing machines—2609—G. F. Bradbury and T. Chadwick.  
Ships, propelling—2605—P. Crause.  
Soap—2608—P. Dumont.  
Sofas, spring mattresses, &c.—2619—D. Gardner.  
Sponges—2646—C. McDermott.  
Steam engines—2713—J., B., and R. Wood.  
Taps—2703—A. Rooker.  
Telegraphs—2599—W. G. Brownson.  
Tobacco pipes—2585—J. W. Halfpenny.  
Tobacco pipes—2673—G. W. McGeorge.  
Valves—2625—T. Adams and G. J. Parson.  
Ventilators—2641—W. Potts.  
Water, preserving life in—2397—J. Goucher.  
Whips and whip holders—2653—W. E. Newton.  
Wine glasses, &c.—2595—J. M. Napier.

#### INVENTION WITH COMPLETE SPECIFICATION FILED. Bolts, manufacturing—2808—W. R. Lake.

#### PATENTS SEALED.

950. S. Lilley.	1130. R. Boby.
1000. G. E. Derburgh.	1134. R. Boby.
1089. H. P. Boyd.	1190. J. H. Johnson.
1090. J. W. Wallis.	1219. J. M. and C. Moseley.
1092. R. L. Hattersley & J. Smith.	1245. G. Davies.
1102. J. Shore.	1250. G. Davies.
1105. W. Gregory.	1441. G. Coles, J. A. Jaques, and J. A. Fanshawe.
1113. R. Alexander.	1442. G. Coles, J. A. Jaques, and J. A. Fanshawe.
1114. S. Harrison.	1115. W. Clark.
1116. W. Clark.	1491. A. M. Clark.
1117. J. W. Cochran.	1540. L. Stuckenschmidt.
1123. G. Simpson.	1971. J. MacNaughton.
1124. D. Rankin.	

*From Commissioners of Patents' Journal, October 15th.*

#### PATENTS SEALED.

1121. J. E. Hodgkin.	1234. G. Davies.
1125. E. B. and J. P. Nunn.	1248. R. W. Ridley & J. Withers.
1126. J. Lewthwaite.	1252. G. Hodgson.
1139. J. Scott.	1279. C. D. Abel.
1140. W. and J. Holding.	1343. R. Smith.
1142. W. Begg.	1345. W. E. Newton.
1143. E. Lindner.	1712. J. Graham.
1146. W. Wilkinson.	1881. J. R. Cooper.
1157. E. Howell and T. Hardy.	1955. T. Vicars, sen., T. Vicars, jun., and J. Smith.
1177. W. R. Lake.	2243. J. Smith.
1178. W. R. Lake.	2407. D. Howard.
1179. W. R. Lake.	2420. W. R. Lake.
1187. T. Tivey.	

#### PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

2714. E. L. S. Benzon.	2527. M. Henry.
2494. E. H. Hugh and F. Windhausen.	2615. R. Hornsby.
2495. T. Lambert & H. C. Soper.	2515. J. Slater.
2497. J. I. Vaughan.	2539. J. H. Dallmeyer.
2504. H. Tucker.	2590. W. Snell.
	2603. J. E. A. Gwynne.

#### PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2574. J. and J. Wadsworth.	2510. A. McDougall.
2468. R. Hornsby, jun.	2491. M. Strang.
2462. C. Wheatstone.	2501. J. Higgins and T. S. Whitworth.